

REMARKS

Claims 1-19 are pending in this application. Claims 1-4, 6, 7, 13, and 19 have been amended to define still more clearly what Applicants regard as their invention. Claims 1, 7, 13, and 19 are independent.

Claims 1, 4, 7, 10, 13, 16, and 19 were rejected under 35 U.S.C. § 103(a) as being obvious from U.S. Patent 4,602,333 to Komori in view of U.S. Patent 5,838,463 to Gahang; Claims 5, 11, and 17, as obvious from Komori and Gahang in view of U.S. Patent 4,949,287 to Yamaguchi et al.; and Claims 2, 3, 6, 8, 9, 12, 14, 15, and 18, as being obvious from Komori and Gahang in view of U.S. Patent 6,078,005 to Kurakake et al.

The present invention is directed to the storing of images in databases, and to improvements in techniques for searching for a desired image. As explained in more detail in the present application, the standard approaches in this field often result in certain problems. For example, it often takes a very long period of time to access the images, particularly if the number of images is large. Also, management such as file movement and the like is often troublesome, particularly for a large number of images. In addition, in one technique, images and their feature amount data are stored in a single file; however, due to the data size of an image file becoming very large with an increasing number of images included therein, individual image data included in the image file would have a relatively low resolution. The present invention is intended to ameliorate these and other problems which have plagued the prior art.

Claim 1 is directed to an image storage method. A plurality of image data is continuously stored in a first area of a single file, and reference information, for accessing a source outside the file, and which pertains to each of the plurality of image data stored in

the image storage step, is stored in a storage order of the plurality of image data in a second area of the file. The reference information includes location information for accessing image data which is a higher resolution version of the corresponding image data stored in the first area.

Among the important features of Claim 1 are the storage of a plurality of image data in a first area of a single file, and the storage of reference information for accessing a source outside the file in a second area of the file, and that the reference information includes location information for accessing image data which is a higher resolution version of the corresponding image data stored in the first area. By virtue of these features, high-speed access to image data and easy management of image data are realized by storing a plurality of image data in a single file. Furthermore, higher-quality image data can be easily obtained as a result of storing the location information.

Komori, as understood by Applicants, relates to storing image data in both original and compressed forms. The image processing apparatus of Komori includes an image data production device, a main memory, a compression circuit, a write circuit, a magnetic disk, a read circuit, an expansion circuit, and an image processing device. The magnetic disk has at least two storage areas. The compressed image data and the non-compressed image data are made from one image data, and the compressed image data has priority over the non-compressed image data in the storage operation of the magnetic disk.

The Office Action states that “Komori does not teach storing reference information, wherein the reference information includes information for accessing image data which is a higher resolution version of the corresponding image data stored in the first area.” In other words, the Office Action concedes that Komori fails to teach or suggest

storing reference information for obtaining a higher resolution version of the corresponding image.

Gahang, as understood by Applicants, relates to a binary image processor including a memory for storing a shading factor for a shading correction, a voltage peak value corresponding to a white reference of an image and a threshold value for determining a black or white pixel of the image. A threshold generator generates the threshold value to be stored in the memory by a line clock of a given pixel unit and by a pixel clock corresponding to each pixel. A voltage peak controller compares image data obtained from reading an image with the voltage peak value stored in the memory, so as adaptively to control the voltage peak value corresponding to the white reference of the image, and restores the compared voltage peak value in the memory. A shading correction controller generates a shading correction signal for the shading correction of the image during a predetermined time period provided by the pixel clock. An edge emphasis controller generates an edge emphasis signal for an edge emphasis of the image during a predetermined time period provided by the shading correction signal. An edge emphasis masking unit masks the image data so as to perform one or more levels of the edge emphasis on a given pixel, and emphasizes an edge of the masked image data in response to the edge emphasis signal.

An operation unit selects and operates arithmetically the image data and the masked image data in response to the shading correction signal and the edge emphasis signal. A binary image determining unit determines whether the image data corresponds to a black or white pixel of an image by comparing a value operated arithmetically by the operation unit with the threshold value. A data output unit outputs binary image data

representing a binary image exhibiting high resolution determined in the binary image determining unit for direct printing or transmission in correspondence with either a transmission mode or a copy mode. (See column 2, line 42, to column 3, line 9.)

Even if Gahang be deemed to discuss storing a shading factor and the like as reference information so as to obtain a higher resolution version of an image, however, the higher resolution image is obtained by processing a corresponding image in accordance with the reference information. According to Gahang, the reference information includes a processing parameter and nothing in that patent is seen to suggest the storage location is indicated. On the contrary, the reference information of Claim 1 includes location information indicating a storage location where higher resolution version data is stored.

Nothing in Gahang would teach or suggest storing a plurality of image data in a first area of a single file and storing reference information for accessing a source outside the file in a second area of the file, where the reference information includes location information for accessing image data which is a higher resolution version of the corresponding image data stored in the first area, as recited in Claim 1. Thus, even if the proposed combination of references is assumed to be proper, the result of that combination would not meet all the terms of Claim 1.

For at least these reasons, Claim 1 is believed to be clearly allowable over Komori and Gahang, either separately or in any possible combination (if any).

Independent Claims 7, 13, and 19 each corresponding to Claim 1, and are believed to be patentable for at least the same reasons as discussed above in connection with Claim 1.

A review of the other art of record has failed to reveal anything which, in Applicants' opinion, would remedy the deficiencies of the art discussed above, as references against the independent claims herein. Those claims are therefore believed patentable over the art of record.

The other claims in this application are each dependent from one or another of the independent claims discussed above and are therefore believed patentable for the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual reconsideration of the patentability of each on its own merits is respectfully requested.

This Amendment After Final Action is believed clearly to place this application in condition for allowance and its entry is therefore believed proper under 37 C.F.R. § 1.116. Accordingly, entry of this Amendment After Final Action, as an earnest effort to advance prosecution and reduce the number of issues, is respectfully requested. Should the Examiner believe that issues remain outstanding, he is respectfully requested to contact Applicants' undersigned attorney in an effort to resolve such issues and advance the case to issue.

In view of the foregoing amendments and remarks, Applicants respectfully request favorable reconsideration and early passage to issue of the present application.

Applicants' undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,


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